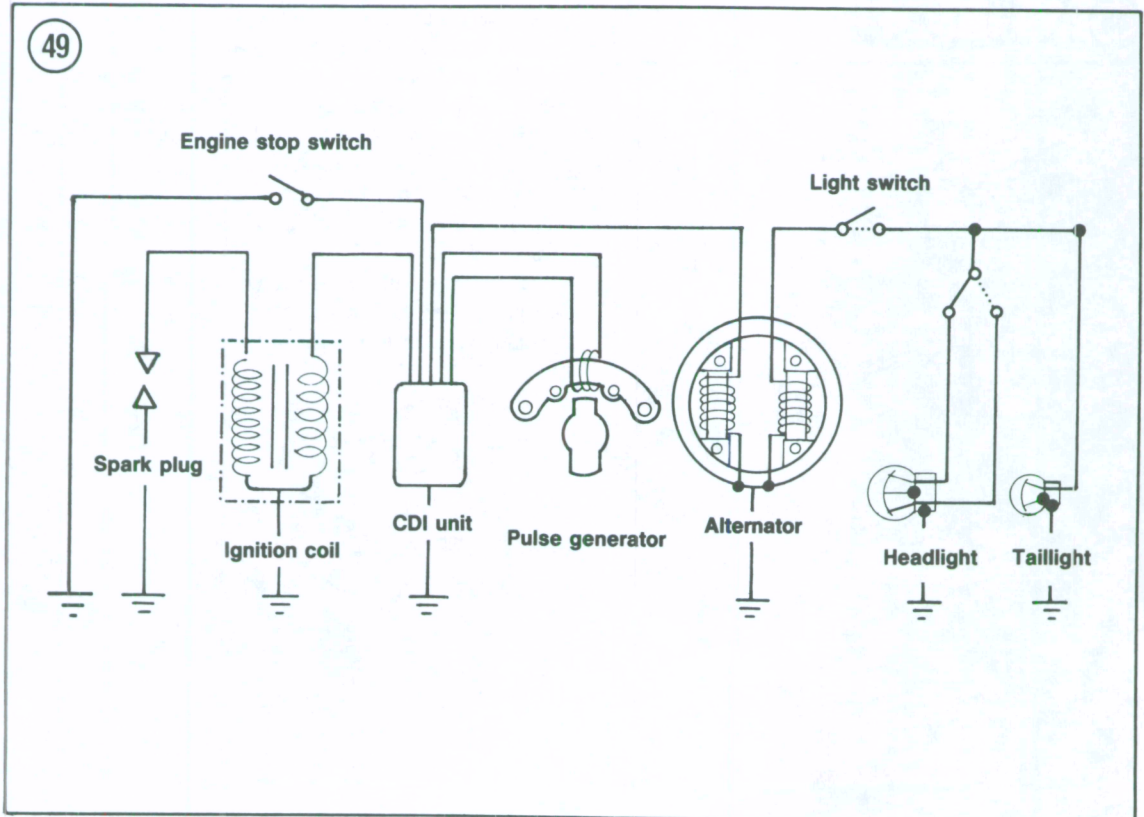
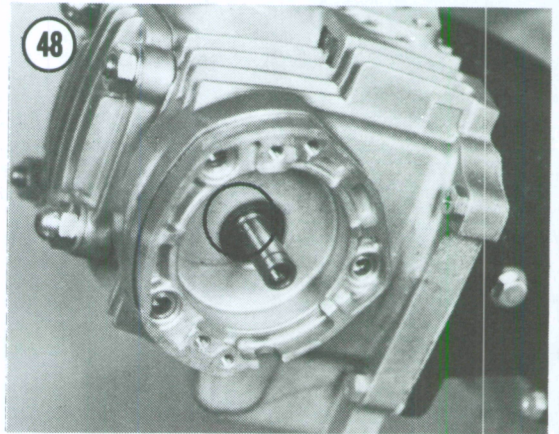


4. Inspect the return springs (B, **Figure 47**). Make sure they are taut and they completely return the arms to their fully retarded position.
5. If the unit fails any of these inspections it must be replaced.
6. Install by reversing these removal steps, noting the following.
7. Index the dowel pin on the camshaft (**Figure 48**) with the notch on the backside of the ignition advance unit. Install the bolt and washer and tighten the bolt to 9-12 N•m (7-9 ft.-lb.).

### CAPACITOR DISCHARGE IGNITION

The capacitor discharge ignition is used on the 1981-on ATC110 and ATC125M models. The capacitor discharge ignition (CDI) system is a solid-state system that uses no breaker points. **Figure 49** shows a typical CDI ignition system.

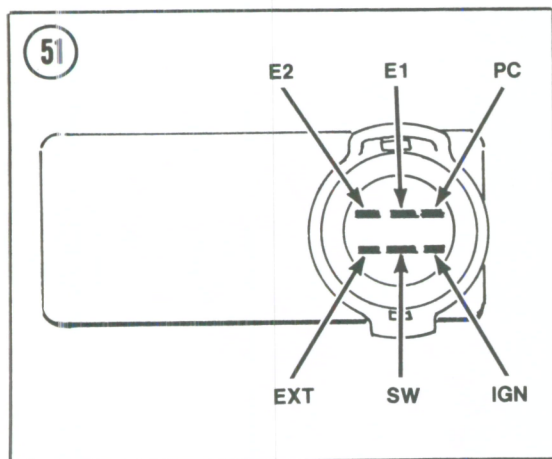
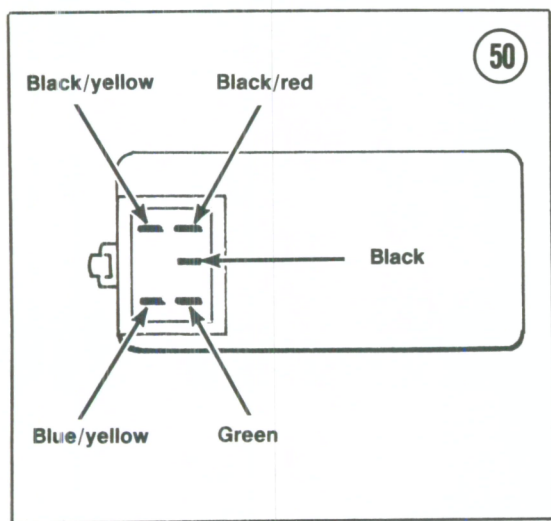
Alternating current from the alternator flows to the CDI unit where it is rectified to direct current and is used to charge the capacitor. At the same time the ignition current is produced, another current pulse is produced by the alternator and a secondary signal coil. This secondary current is timed precisely to coincide with the engine's firing point and can be regarded as the timing signal.



## Precautions

Certain measures must be taken to protect the capacitor discharge system. Damage to the semiconductors in the system may occur if the following precautions are not observed.

1. Never disconnect any of the electrical connections while the engine is running.
2. Keep all connections between the various units clean and tight. Be sure that the wiring connectors are pushed together firmly to help keep out moisture.
3. Do not substitute another type of ignition coil.
4. The CDI unit is mounted within a rubber vibration isolator. Always be sure that the isolator is in place when installing the unit.
5. On models so equipped, never connect the battery backwards. If the battery polarity is wrong, damage will occur to the rectifier and to the alternator.



## Troubleshooting

Problems with the capacitor discharge system are usually the production of a weak spark or no spark at all.

Check all connections to make sure they are tight and free of corrosion or rust.

Check that the ignition coil is not damaged or cracked. If the case is damaged in any way or the spark plug lead is damaged the coil should be replaced.

## Testing

To test the CDI unit, remove the unit from the frame as described in this chapter.

### CAUTION

*Tests may be performed on the CDI unit but a good one may be damaged by someone unfamiliar with the test equipment. If you feel unqualified to perform the test, have the test made by a Honda dealer or substitute a known good unit for a suspected one.*

### NOTE

*Tests must be made with a good quality ohmmeter or the test readings may be false.*

Refer to **Table 2** for ohmmeter positive (+) and negative (-) test lead placement and specified resistance values.

On all models the electrical wire harness connector disconnects from the CDI unit. The tests are made directly to the terminals within the CDI unit. For terminal color designation refer to **Figure 50** (ATC110) or **Figure 51** (ATC125M).

If the CDI unit fails *any one* of the tests, the unit is faulty and must be replaced.

## CDI Unit Replacement

1. Remove the seat/rear fender assembly.
2. Remove the fuel tank as described in Chapter Six.
3. Pull the CDI unit and its rubber isolator (A, **Figure 52**) off of the bracket on the frame.
4. Disconnect the electrical connector (B, **Figure 52**) going from the CDI unit to the electrical harness.
5. Install a new CDI unit and attach the electrical connector to it. Make sure all electrical connections are tight.
6. Reinstall the fuel tank, rear fender and seat.



### Ignition Pulse Generator Inspection/Replacement

Refer to **Figure 53** for this procedure.

The ignition pulse generator is mounted on the end of the camshaft on the left-hand side of the cylinder head.

#### NOTE

*In order to get accurate resistance measurements the unit must be at approximately 68° F (20° C).*

1. Disconnect the electrical connector (containing 2 wires, one green and one blue/yellow) from the ignition pulse generator (**Figure 54**).

2. Use an ohmmeter set at  $R \times 10$  and check resistance between the blue/yellow and green wires. The specified resistance is as follows:

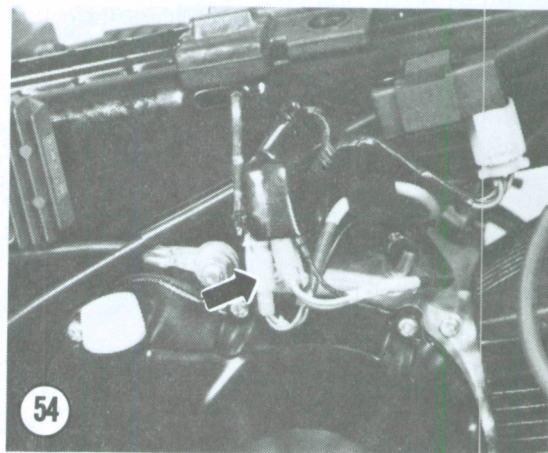
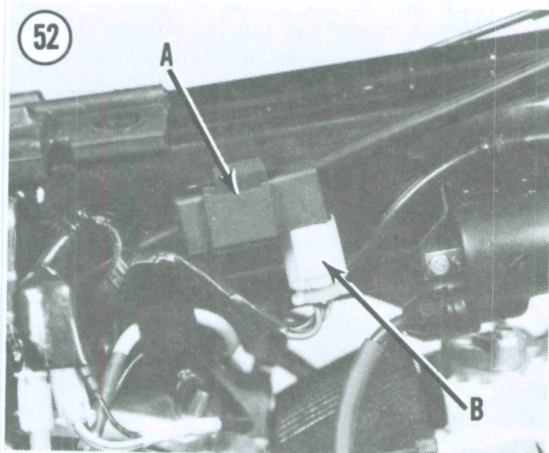
- a. ATC110: 20-60 ohms.
- b. ATC125M: 90 ohms.

If the reading falls within these values the ignition pulse generator is good. If there is no continuity (infinite resistance) the unit is faulty and must be replaced.

3. To remove the ignition pulse generator assembly, remove the screws securing the ignition cover (**Figure 55**) and remove the cover.

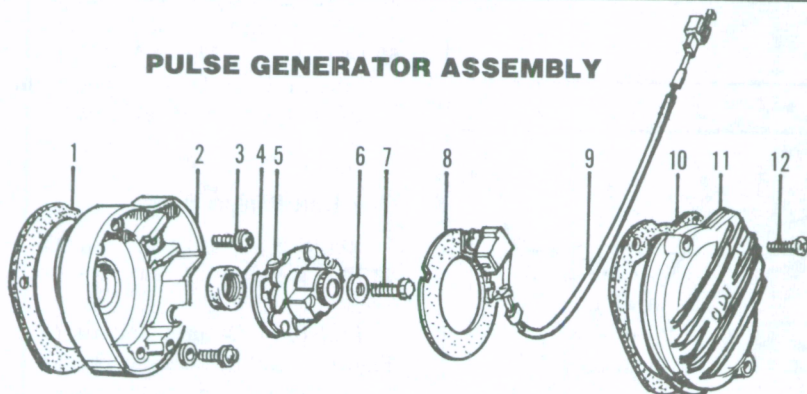
#### NOTE

*Prior to removing the pulse generator assembly, make a mark on the base plate that lines up with the centerline of one of the attachment screws. This will*



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### PULSE GENERATOR ASSEMBLY



1. Gasket
2. Pulse base
3. Screw
4. Oil seal
5. Pulse rotor and ignition advance unit
6. Washer

7. Bolt
8. Pulse generator assembly
9. Electrical wire and connector
10. Gasket
11. Ignition cover
12. Screw



*assure correct ignition timing when the assembly is installed (providing it was correct prior to removal).*

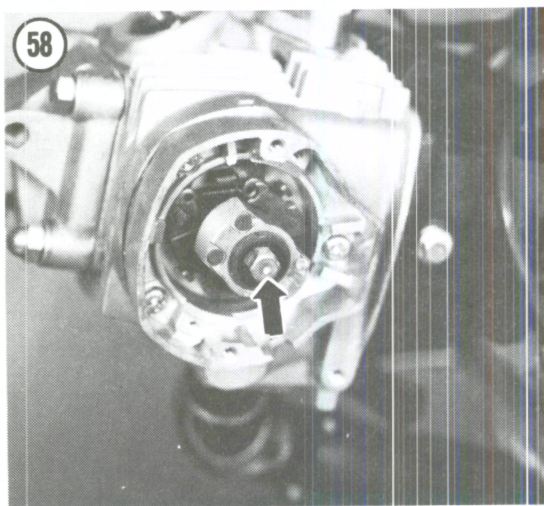
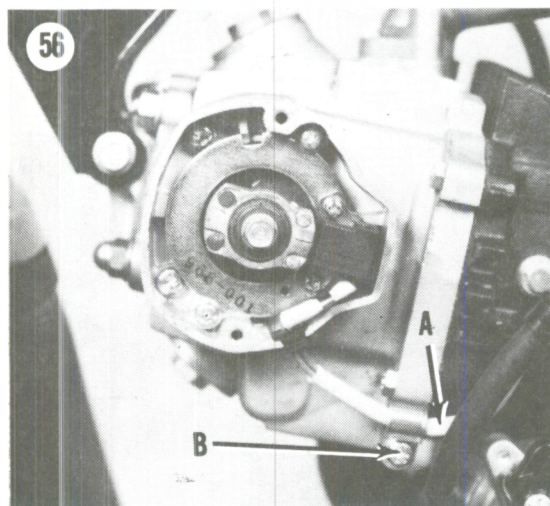
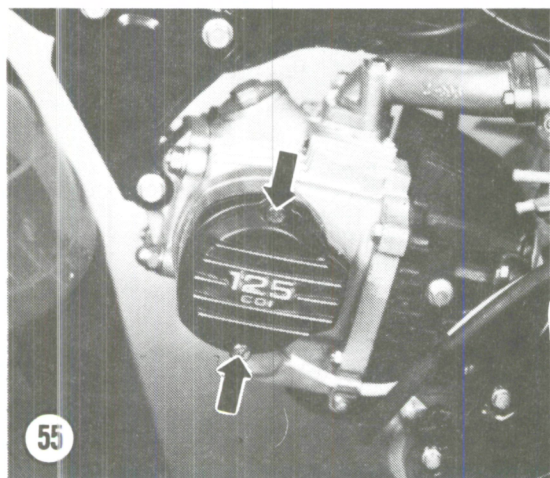
4. Pull the electrical wire (disconnected in Step 1) (A, **Figure 56**) free and remove the screw (B, **Figure 56**) securing the electrical cable to the cylinder head.
5. Remove the screws (**Figure 57**) securing the pulse generator assembly and remove the assembly.
6. Install by reversing these removal steps. Adjust the ignition timing as described in Chapter Three.

### Ignition Advance Mechanism Removal/Inspection/Installation

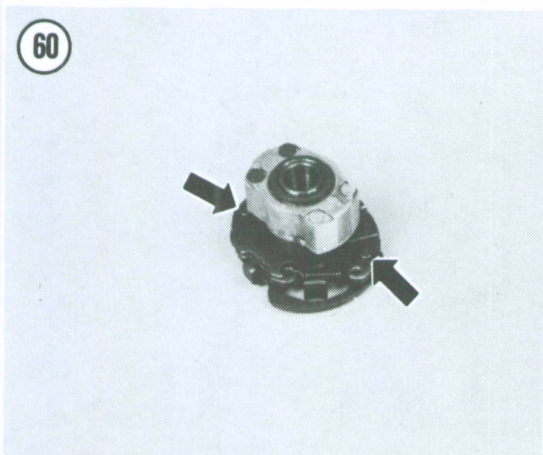
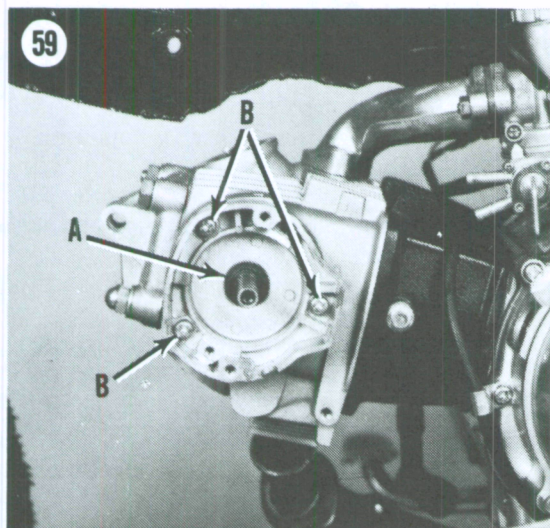
The ignition advance mechanism advances the ignition (fires the spark plug sooner) as engine

speed increases. If it does not advance properly and smoothly, the ignition will be incorrect at high engine rpm. It must be inspected periodically to make certain it operates freely.

1. Remove the ignition pulse generator as described in this chapter.
2. Remove the bolt and washer (**Figure 58**) securing the pulse rotor and the ignition advance mechanism and remove the assembly.
3. Don't lose the dowel pin (A, **Figure 59**) on the camshaft.
4. If necessary, remove the bolts (B, **Figure 59**) securing the pulse base and remove the pulse base and gasket.
5. Inspect the rotor pivot points (**Figure 60**) of each weight. The rotor must pivot freely to maintain proper ignition advance. Apply lightweight grease to the pivot pins.



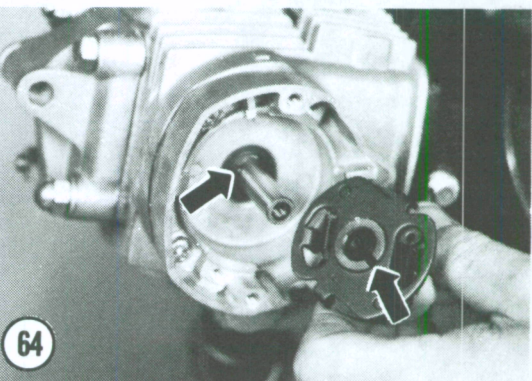
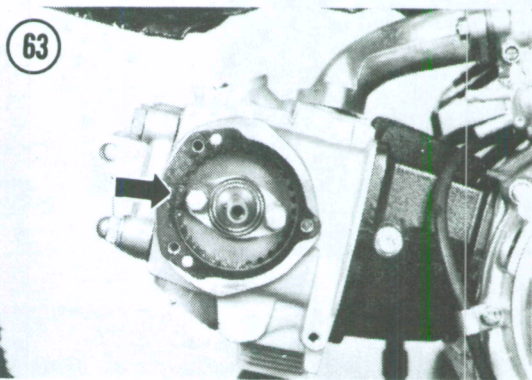
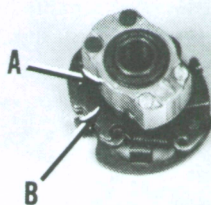




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6. Inspect the rotor return springs (Figure 61). Make sure they are taut and completely return the rotor to its fully retarded position.

7. If the unit fails either of these inspections it must be replaced.

8. If the rotor was removed from the base, install it, aligning the punch mark (A, Figure 62) with the index mark on the base (B, Figure 62).

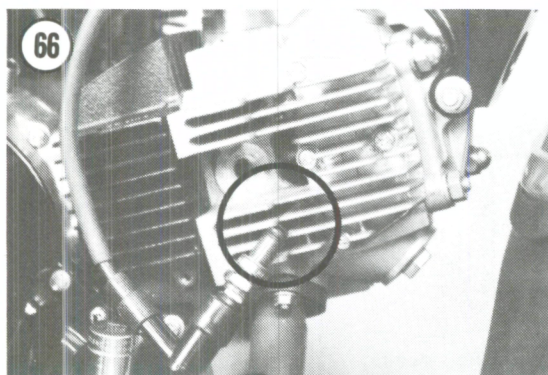
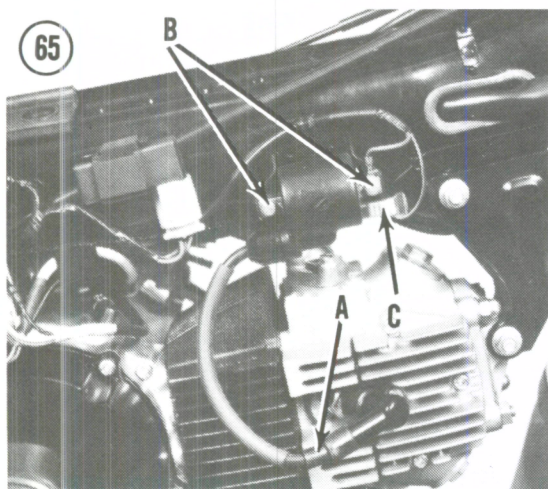
9. If removed, install the pulse base and gasket (Figure 63).

10. Make sure the dowel pin is in place on the camshaft.

11. When installing the pulse rotor and ignition advance mechanism, index the notch on the backside of the advance unit with the pin in the end of the camshaft (Figure 64).

12. Install the bolt and washer securing the pulse generator and ignition advance mechanism and tighten to 12 N•m (9 ft.-lb.).





13. Install the pulse generator assembly as described in this chapter.

14. Adjust the ignition timing as described in Chapter Three.

### IGNITION COIL

The ignition coil is located on the backbone of the frame.

#### Removal/Installation

1. Remove the seat/rear fender assembly.
2. Remove the fuel tank as described in Chapter Six.
3. Disconnect the high voltage lead from the spark plug (A, **Figure 65**).
4. Remove the nuts and lockwashers (B, **Figure 65**) securing the ignition coil to the frame.
5. Disconnect the primary electrical connector (C, **Figure 65**) going to the ignition coil and remove the coil.
6. Install by reversing these removal steps. Make sure all electrical connections are tight and free of corrosion.

#### Testing

The ignition coil is a form of transformer which develops the high voltage required to jump the spark plug gap. The only maintenance required is that of keeping the electrical connections clean and tight and occasionally checking to see that the coil is mounted securely.

If the condition of the coil is doubtful, there are several checks which may be made.

#### Dynamic test

First, as a quick check of coil condition, disconnect the high voltage lead from the spark plug. Remove the spark plug from the cylinder head. Connect a new or known good spark plug to the high voltage lead and place the spark plug base on a good ground such as the engine cylinder head (**Figure 66**). Position the spark plug so you can see the electrodes.

#### WARNING

*On models with a CDI ignition system, if it is necessary to hold the high voltage lead, do so with an insulated pair of pliers. The high voltage generated by the CDI could produce serious or fatal shocks.*

Turn the engine over with the recoil starter. If a fat blue spark occurs, the coil is in good condition; if not, proceed as follows. Make sure that you are using a known good spark plug for this test. If the spark plug used is defective the test results will be incorrect.

Reinstall the spark plug in the cylinder head.

#### Static test

Honda does not provide resistance specifications for all models. Refer to **Figure 67** for this procedure.

#### NOTE

*In order to get accurate resistance measurements the coil must be at approximately 68° F (20° C).*

1. Disconnect all ignition coil wires before testing.
2. Measure the coil primary resistance using an ohmmeter set at  $R \times 1$ . Measure between the primary terminal and the mounting flange. The reading should be as follows:
  - a. All ATC70: 0.2-0.3 ohms.
  - b. 1981-on ATC110: 0.2-0.8 ohms.
  - c. ATC125M: 10-18 K ohms.
  - d. All others—continuity should exist.



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